Pocomoke River State Park 2016 Park Quest

Elevation Investigation

Discover how even a slight change in elevation can impact the type of plants that live in a forest.

Start at the trail head for the Trail of Change by the Brochure Stand

Marker #1:

Welcome to the Pocomoke River State Park Trail of Change! This trail gets its name because the elevation changes as you walk along its winding path. As the elevation (height of the land relative to sea level) changes so do the types of plants that live along the trail. This Pocomoke River State Park Quest activity will guide your exploration of this exciting trail and the different types of plants and wildlife that call the forest surrounding the trail home.

Back in the days of bustling sailing vessels and steamboats there were 48 landings along the Pocomoke River used for shipping goods out to the Chesapeake Bay and beyond. Tobacco, lumber, farm produce and fish were transported on the river. This landing was named for the abundant shad fish that were harvested during the spring fish runs.

Clue #1: How many landings were there along the Pocomoke River?

_____

What types of trees and plants do you notice in this area of the forest?

_____

Marker #2:

Loblolly Pine

This is an uplands forest area and it is populated by the loblolly pine, a species of conifers found mostly in lowlands and swampy areas. The Loblolly Pine is one of the fastest growing southern pines. It has dark green needles and can grow up to 100 feet tall. Foresters plant loblolly trees as part of a 50 to 60 year forest plan. During years 20 to 25, some trees are harvested to thin out the forest leaving more space for the remaining trees to grow larger.

Slower growing hardwoods such as oaks, maples, and sweet gum will later grow enough to shade out the softwood pines and eventually replace them creating what is called a mature forest.

As you walk through the forest, see if you can locate a few of the hardwood trees that are common to Pocomoke River State Park. As you discover the tree, check the box next to the leaf and seed/seed pod of the trees below:

☐

Sweet Gum Leaf

Sweet Gum Ball Seed Pods

☐

Maple Leaf

Maple Seed

Sassafras trees also grow in this area of the forest. Sassafras leaves, bark, twigs, stems, and fruits are eaten by birds and mammals in small quantities. Parts of sassafras plants, have been used for culinary, medicinal, and aromatic purposes by humans. The wood of sassafras trees is also used as a material for building ships and furniture.

Clue #2: How many variations of leaf patterns might you find on a Sassafras Tree?_____

Hint: See the image to the right.

Sassafras Tree Leaf Variations

Marker #3:

Find the tree with the holes in its trunk. What do you think made the holes in this tree?

_____

If you answered a woodpecker you are correct. What do you think the woodpecker is looking for as it makes the holes?

_____

This is a live tree so what else might the woodpecker be looking for?

_____

A woodpecker's strong, pointed beak acts as both a chisel and a crowbar to remove bark to help it find hiding insects. A woodpecker has a very long tongue, up to four inches long in some species, with a glue-like substance on its tip for catching insects.

Peliated Woodpecker

Northern Red Bellied Woodpecker

Downy Woodpecker

Many Birds of Prey call Pocomoke River State Park their home too. Some that are common are pictured below:

Turkey Vulture

Broad Winged Hawk

Screech Owl

Civilian Conservation Corps

Many years ago much of the land around you was once cleared farm woodlots and tilled for farming. During the depression many farmers in this area were forced to foreclose and their land was turned over to Federal and State government. The Civilian Conservation Corps (CCC) then planted this area with loblolly pines to create the State Forest.

As you look around at the trees of this area, notice the difference in types of pine cones and different number of needles on the pine leaves. The Loblolly Pine has 3 needles per cluster. The Virginia Pine has 2 needles per cluster. The White Pine has 5 needles per cluster.

Loblolly Pine Leaf

Virginia Pine Leaf

White Pine Leaf

Loblolly Pine Cone

Virginia Pine Cone

White Pine Cone

Clue #3: How many pine needles does a Loblolly Pine tree have in its cluster? _____

How tall can a Loblolly Pine tree grow?_____

What happened to cause farmers to lose their land?_____

Which group of people planted Loblolly Pine trees at Pocomoke River State Park? _____

Marker #4:

In this area of the forest you will begin to see a forest transition. You are still in the uplands area but you will soon travel down into the wetlands of the Pocomoke River. The Pocomoke River originates in the Great Cypress Swamp in Delaware and flows southwesterly 45 miles to empty into the Chesapeake Bay. As you approach the swamp notice how the temperature changes as you walk into the swamp area. Before you go any further, turn around and look at the upland forest. Now look down into the swamp and note the differences in the plant communities.

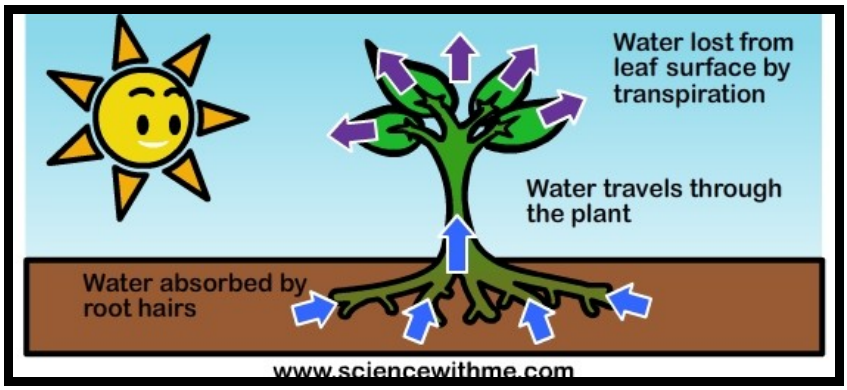
Clue #4: How many miles does the Pocomoke River flow from the Great Cypress Swamp in Delaware before emptying into the Chesapeake Bay?

_____

Marker #5:

You are now in the bald cypress swamp area. You will notice lots of ferns (ferns are prehistoric plants), cypress trees and fungus along this section of the trail. You will notice that there is a lot of water pooling on the ground. Does it feel cooler to you? As you walk into the swamp the air temperature drops. Plants in the swamp act as nature's air conditioner through a process called transpiration. Green plants take moisture from the soil and release it through their leaves into the atmosphere cooling the surrounding area. A plant uses up to 98% of its energy in the transpiration process. This process helps the plant pump water and minerals to the leaves for photosynthesis.

Process of Transpiration



Clue #5: On average what percentage of a plant's energy is used in transpiration? _____

Marker #6

Cypress trees are known to grow 300 feet tall and can live to be 600 years old. Here you can see cypress knees. These aren't knees like ours, but rather they are a special kind of root. The technical term for the knees is "pneumatophore," which means "air bearing." Pneumatophores grow from horizontal roots of the cypress tree just below the surface and protrude upward from the ground or water. Since bald cypress trees often grow in swampy conditions, it's thought that the pneumatophores function to transport air to drowned roots underground. They also might help to anchor the tree.

Clue #6: How old can a cypress tree grow to be?_____

What are cypress knees?

_____

Where do bald cypress tress grow?

_____

Marker #7:
Surrounding you now is an area of unique and primitive plants that reproduce today just as they did millions of years ago. They are ferns and they produce spores on the undersides of their leaves. Ferns have neither seeds or flowers. They are common to the cypress swamp and you can find three species that are particularly common at Pocomoke River State Park. They are the Cinnamon fern, Christmas fern, and Chain ferns.

Cinnamon Fern

Christmas Fern

Chain Fern

Clue#7: How many species of ferns are common to the Pocomoke River State Park?_____

Name a fact that you find interesting about ferns: _____

What are three types of ferns found at Pocomoke River State Park?

_____, _____, and _____

Marker #8:
The Pocomoke River is one of only nine rivers in the state of Maryland designated as a Wild and Scenic River. One interesting fact about the Pocomoke River is that it's water is dark brown in color. The water is not dirty, it is just dark in color. Tannic acid seeps from the leaves and roots of the cypress and pine trees to create the dark color. There are plenty of fish, amphibians and reptiles that live in the river. It was once thought that the word Pocomoke meant "dark water" referencing the color of the Pocomoke waters. A more recent translation of the word suggest it means "pierced earth" which may be a reference to the cypress knees which appear to pierce the earth from beneath or to the early farming practices of the region.

Clue #8: How many rivers in the state of Maryland are designated as Wild and Scenic? _____

What is the acid called that gives the water of the Pocomoke its dark color?

_____

Marker #9:
Sphagnum moss is the tiny plant surrounding the base of many of these trees. This moss prevents erosion and flooding in the marsh by holding large amounts of water and creating a raft of plant material that is strong enough to hold a person's weight. Sphagnum moss is very absorbent; it was once used as a bandage material because it absorbs blood just like water. Decayed Sphagnum Moss, also called peat moss is used in soil to increase its ability to hold nutrients. Dried Sphagnum moss can be used as insulation.

Sphagnum Moss

Clue #9: How many ways did you learn that sphagnum moss can be used? _____

Marker #10
In this area you will see the Mountain Laurel Tunnel. Mountain laurel prefers the moist acidic soil adjacent to the cypress swamp rather than the drier upland soils. This shrub grows about ten inches per year. It's dense growth and gnarled branches provide excellent habitat for wildlife, including many species of migratory birds. The mountain laurel is poisonous so please do not touch or eat the flowers. Bee keepers hate this plant because the bees bring back the poison along with the pollen to their hives.

Mountain Laurel

Clue #10 About how many inches does a Mountain Laurel shrub grow each year? _____

Why do bee keepers hate this plant?_____

Marker #11

As you have walked this trail, you have noted how the vegetation changes as a result of the elevation changes, the amount of moisture in the soil, how the land was used in the past and other natural effects of time. While undisturbed floral and faunal communities will vary according to environmental factors and change over time, human use of the landscape can alter these fragile communities almost instantly and have an impact that may last for generations. This park land has been allowed to recover by its natural process of succession with minimal additional human impact. Succession is the observed process of changing from an immature to a mature forest.

Help to preserve the floral and faunal communities on our park land by minimizing your own impact to the landscape and be sure to LEAVE NO TRACE!!

Use the answers to the clues to decipher the combination needed to open the lock box. Inside the box you will find the Park Quest Passport Stamp and a journal. Please sign the journal and stamp your book. Once you have finished put all materials back in the lock box, lock it and enjoy your time at the Park.

Use the clues to decipher the combination codes to the lock box using the following formula. Then use the combination codes to open the locked box.

First Number of the Combination:

_____ divided by 12= ☐
Clue 1

Second Number of the Combination:

_____ + _____ = ☐
Clue 2 Clue 3

Third Number of the Combination:

(_____ divided by _____) -195 = ☐
Clue 6 Clue 7

Last Number of the Combination:

_____ + _____ - _____= ☐
Clue 8 Clue 9 Clue 10

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